

**Recording of Dead-In-Shell or  
Pre-birth Events  
(Dead In Shell – Do We Tell?)  
IDMAG Statement of Clarification\* # 2  
(Issued 11 February 2004)**

**STATEMENT**  
**Late-term embryos of egg-laying species should be accessioned,  
regardless of survivorship.**

**SUPPORTING INFORMATION**

The “Standards for Data Entry and Maintenance of North American Zoo and Aquarium Animal Records Databases©” (1) states:

*All mammalian births (natural or assisted), premature births, stillbirths, and abortions should be accessioned. (page 41)*

*Chicks that hatch are accessioned on the hatch date. Chicks that die during the pipping process are equivalent to the mammalian premature birth, and should be accessioned..... Late-term, non-pipped dead-in-shell chicks should also be accessioned, with the same hatch date and death date and a Comment (code NX) that further details this.” (page 41-42)*

*All eggs that pip and hatch are considered equivalent to a mammalian birth and should be accessioned ... (page 43)*

*All reptile and amphibians, upon hatching or birth, and all late-term embryos, defined as having little or no yolk sac remaining, should be accessioned ... (page 42)*

AZA records standards specifically state that late-term dead in shell (DIS) avians and herps should be accessioned, much like the standard to accession mammalian premature births, stillbirths and abortions. All institutions have not uniformly followed the standard. This Statement is needed to provide further clarification for all institutions to follow the recommended standard.

Any agency with responsibility for creating or defining records-keeping software should be instructed to produce software enabling data entry in conformity with the above standard. The ZIMS software under development will be designed to better handle pre-birth events, but institutions are encouraged not to wait until this software is distributed to follow the standard.

**IMPACT OF STATEMENT**

**1. Life History Analysis**

Accurate and truthful accounting of a species’ reproductive potential is of extreme importance to species and collection managers. Species in which embryos have difficulty surviving to term can be identified. True reproductive status and pairing capabilities are identified. Studbook keepers use birth and death rates as a measure when making

breeding recommendations. The same reasoning applies as in not deferring the accession of a mammal birth until 30-day survivorship: it underestimates mortality and prevents development of scientifically sound breeding recommendations.

## 2. Record Keeping: Consistency and Accuracy

A major point of contention has centered on the issue of recording animals that actually died prior to birth as having been born and died on the same date. Some have objected to recording these pre-birth events because they could occur in large numbers, and as a result, the increased mortality rate could be perceived as reflecting negatively on the institution and its breeding programs. Concurrently, a birth event is captured that otherwise would not have been credited to the institution and/or breeding program.

Due to software limitations, it has not been possible to create a pre-birth event followed by a death event in ARKS3 or ARKS4. Institutions vary greatly regarding how a pre-birth event is recorded (or not). Unfortunately, institutions are independently choosing what and how to record these events. Within institutions, not all managers agree about how to record the data. Inconsistent recording of data, however, is more detrimental to accurate record keeping than incomplete data.

## 3. Implementation

The current data entry standard was instituted as a compromise in 1998 because agreement couldn't be reached decisively regarding recording "everything", i.e., all known fertile eggs. The concept of accommodating pre-birth animals is part of the upcoming ZIMS model. Data standards for ZIMS may expand to include accessioning all known fertilities, even those identified as early-term deaths. While awaiting ZIMS software, data managers should record pre-birth events in ARKS4 by using the same date for both birth and death and a Note (code NX) that further details this event.

## REFERENCES

1. Earnhardt, Joanne M.; Thompson, Steven D., PhD.; Turner-Effort, Ginny; editors. 1998. *Standards for Data Entry and Maintenance of North American Zoo and Aquarium Animal Records Databases*. Lincoln Park Zoo: Chicago, IL.
2. IDMAG DIS Task Force Committee. 2002. *Report of Dead In Shell (DIS) Institutional Data Management Advisory Group (IDMAG) Task Force*. Submitted to Adrienne Miller, Chair IDMAG, for presentation during the AZA Conference, September 6, 2002, Fort Worth Zoo, Fort Worth, Texas.

\*A Statement of Clarification is issued to enhance and publicize an existing and approved standard in data entry and management.

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